

# ADJUSTMENTS AND TROUBLESHOOTING

## CAUTION

Never make adjustments with the engine running.

### LOSS OF POWER IN THE DRIVE SYSTEM

Check the fluid level and be sure the proper amount of fluid is in the expansion tank. The cooling fins and fan blades should be clean and free of foreign matter.

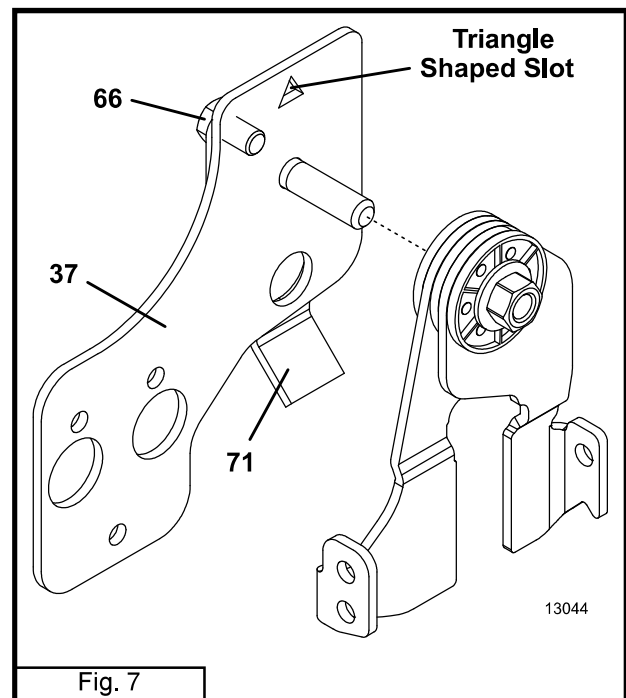
### NO POSITIVE NEUTRAL POSITION

If drive wheels travel forward or backward when the steering lever is in swing-out position (neutral), adjustment is required.

### NEUTRAL ADJUSTMENT

(Refer to Fig. 7 and illustration on page 35)

1. Block up under tractor frame so both drive wheels are off the ground.
2. Make sure parking brake is released.
3. Remove linkage rod (item 28 or 29) from transmission control arm (item 16 or 17).
4. Place steering levers in the neutral swing-out position and start engine.
5. If either of the drive wheels turn, proceed with the following adjustment.
6. Locate the return mount (item 37) with the adjustment plate (item 71) bolted to it. The right plate adjusts the right side while the left plate adjusts the left side. Loosen the .312-24 x .5 bolt (item 66) located in the upper front corner of plate. Insert a screwdriver into the triangle shaped slot and rotate adjustment plate until neutral is achieved. Tighten bolt.
7. Repeat procedure on other side of transmission.
8. Reinstall linkage rod in control arm. If rod end (item 26) does not reinstall into control arm without moving the control arm, adjust length of linkage rod until it slides into control arm to assure neutral adjustment will be maintained when linkage is connected.
9. Test drive machine for straight line travel



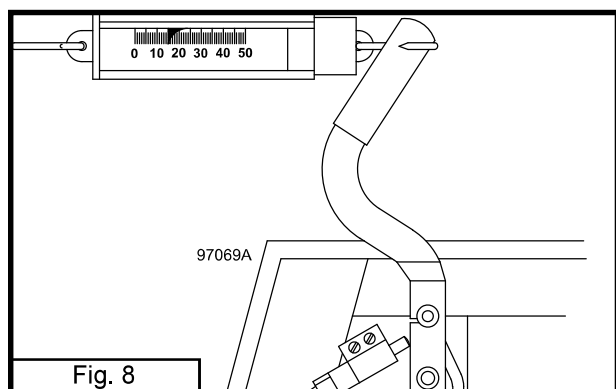
with both levers full forward. If travel is not in a straight line, adjust the steering lever stop on the side that is the fastest i.e.: if machine goes to the left, adjust the right steering stop to slow down the right transmission until travel is straight ahead.

## PARKING BRAKE ADJUSTMENT

(Refer to Fig. 8 and illustration on page 37)  
Adjust the right and left brake individually. Disconnect the right brake linkage rod (item 25). Adjust the linkage pin (item 27) attached to the left brake until it takes 14 lbs of pull at the top of the hand lever to apply the parking brake. Adjustment of brake linkage rod (item 22) may also be required. Connect the right brake linkage.

Disconnect the left brake linkage rod and adjust the linkage pin attached to the right brake until it takes 14 lbs of pull at the top of the hand lever to apply the parking brake. Connect the left brake linkage.

With both brakes connected it should take 28 lbs of pull at the top of the hand lever to apply the parking brake. Adjust the brake linkage rod (item 22) if necessary.



## CLUTCH REMOVAL / REPLACEMENT

(Refer to page 40)

- Remove anti-rotation bracket (item 19).
- Using a 15/16 inch wrench, rotate the idler arm (item 23) with idler pulley (item 30) away from belts and remove drive belts (item 37).
- Unplug wires from clutch and remove center bolt (item 18). Slide clutch off engine crankshaft.
- Reverse order to install new clutch.
- Torque clutch bolt to 50 ft lbs. Run clutch 15 minutes, then torque to 50 ft lbs again.

## CLUTCH/BRAKE BURNISHING

### IMPORTANT

**A new clutch, or one that has not been used for three months, will require burnishing to dress drive surfaces. The clutch could fail if you do not accomplish the following procedure.**

Place tractor in neutral and start engine. Turn clutch switch on 30 seconds and off 30 seconds, five times at half-throttle and repeat five times at full throttle. The time interval allows the clutch surface to cool.

## FUEL SOLENOID OPERATION

This engine is equipped with an "energize to stop" fuel shut-off solenoid. The engine fuel stop valve is normally open. When the ignition switch is turned to the OFF position, the fuel shut off solenoid is engaged and will close the fuel stop valve. The solenoid is powered through a timer, which will keep the solenoid energized for about 8 seconds for engine shut down.

Should the engine not stop running due to mechanical or electrical failure, there is a manual stop lever that can be activated to stop the engine:

- Locate the manual stop lever extension forward of the air cleaner (item 16, page 33 & Fig 3, page 18).
- Push the stop lever extension forward towards the radiator. Hold in this position until the engine stops running.

## TESTING FUEL SOLENOID

Since this model solenoid is factory installed by the engine manufacturer, no adjustment is required. To test solenoid operation, briefly turn the ignition switch to the "ON" position and then back to "OFF". The solenoid should engage (pull in) for about 8 seconds and then release. If it does not engage, check for a blown fuse at the tractors fuse block. If the fuse is not blown, test the solenoid as follows.

Unplug the wire leading to the fuel solenoid. Using an ohmmeter set on the X 1 OHM scale, connect meter leads to the solenoid terminal and to ground. The correct meter reading should be .9 OHMS:

If you do not get this reading or the circuit reads open, the solenoid is defective and must be replaced.

## ENGINE TROUBLESHOOTING

Should you experience trouble in starting the engine, use the following guide to locate possible causes.

### Engine will not crank:

- Battery is discharged.
- Blown starter fuse.
- PTO switch is "ON".
- Steering levers are not out in neutral.
- Steering lever switches are out of adjustment (listen for the switch "click").
- A loose wire or connection.

### Engine cranks, but will not start:

- Fuel tank is empty.
- Restricted fuel line or fuel filter.
- Blown ignition fuse.
- A loose wire or connection.

If the above points do not locate the problem, contact your authorized Grasshopper dealer for repair.

### Engine dies when steering levers are engaged:

- If engine starts and runs but dies when either steering lever is engaged, check the following. Make sure the parking brake is released. The steering levers cannot be engaged with the parking brake on. With the key switch "ON" and the seat switch engaged, check for ground at the two yellow wires on the seat switch. If there is ground at one wire but not the other, either the seat switch is defective or it is not being activated properly.
- If there is ground at both yellow wires on the seat switch, check for ground at the yellow wire on the parking brake switch. If there is

no ground, the wire between the seat switch and the parking brake switch is broken. If there is ground at the yellow wire, check for ground at the white wire. If there is no ground at the white wire, the parking brake switch is defective and must be replaced.

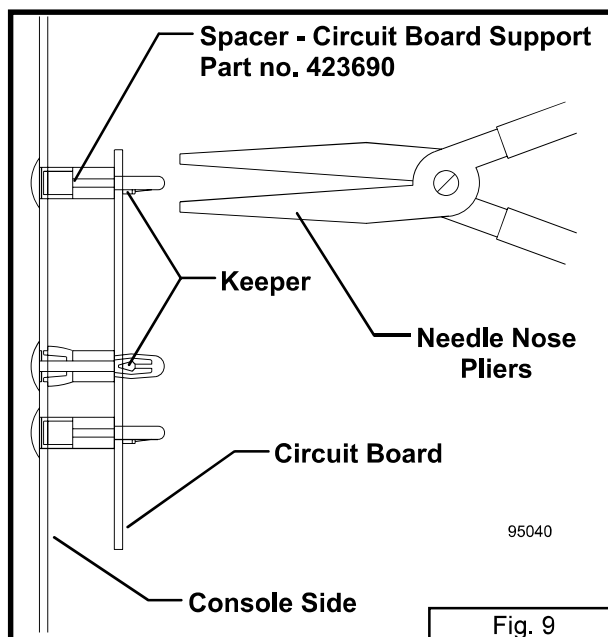
**NOTE: These tests must be performed with an accurate voltmeter. Do not use a test light; the amperage in this circuit is too low to light a test light properly. This circuit is the ground side of relay A.**

## ENGINE REMOVAL

To remove engine, disconnect: battery, fuel line, electrical wires from engine, throttle and flex coupling connected to coupling hub. Remove the four engine mount bolts to the frame and drive belts from engine sheave. The engine can now be lifted out. Consult your local authorized engine dealer for repairs or repair parts.

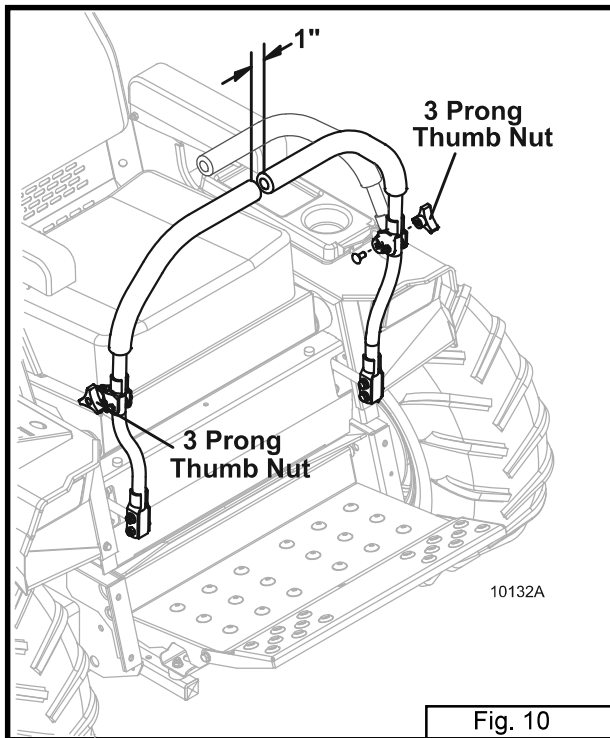
## WIRING CIRCUIT BOARD REMOVAL

Remove the circuit board from the console by compressing the keeper in each of the three circuit board support spacers with needle nose pliers (refer to Fig. 9). Slide the board past each keeper when it is compressed.



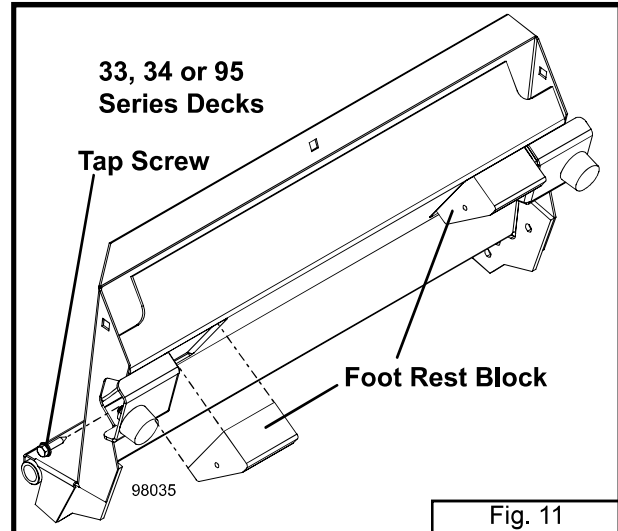
## STEERING LEVER ADJUSTMENT

To adjust steering levers, loosen 3 prong thumb nuts that secure the upper levers to the lower. This allows the upper levers to be moved backward (refer to Fig. 10). Set levers to a comfortable position for the operator. Hold levers in position and tighten thumb nuts. The levers must line up when in neutral position and maintain a minimum of one inch of clearance between end of levers.



## FOOT REST BLOCK INSTALLATION

If installing a 33, 34 or 95 series deck on a 700 series tractor, install the foot rest blocks with the wide end of block toward the front (refer to Fig. 11).



If installing an SL96, SL98 series or 9772 deck on a 700 series tractor, install the foot rest blocks with the narrow end of block toward the front (refer to Fig. 12).

